ADC2000, QUICKSTART

P/NS:
962831A-1-S-8
962831A-2-S-8
962831A-3-S-8

INSTALLATION MANUAL

REV E

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PAGE CONTROL CHART

11.0 INSTALLATION DRAWINGS AND INSTALL KITS PARTS LISTS

Drawing No.	Description/Part Number	DATE	REV
4028-005	Installation, OAT Probe Assembly Kit P/N 681201-1	02/14/05	C
4028-395	Installation, Mounting Tray, ADC2000	08/01/05	C
4028-T94	Installation, ADC2000, QS, Digital FF, P/N 962831A-1-S-8	05/02/05	–
4028-T95	Installation, ADC2000, QS, Sine FF, P/N 962831A-2-S-8	05/02/05	–
4028-T96	Installation, ADC2000, QS, DC FF, P/N 962831A-3-S-8	05/02/05	–
4028-A62	Installation Wiring, Loop-Back Harness for F/ADC200/2000, MS Connector	09/28/98	–
4028-E29	Installation Wiring, ADC2000, Quickstart, Chelton RS232/RS422	05/02/05	B
4028-E30	Installation Wiring, ADC2000, Quickstart, Chelton OAT/Heading System	05/02/05	B
4028-875	Installation Wiring, ADC2000, Quickstart, Digital, Sine, and DC Fuel Flow	05/02/05	C
4028-A80	Label, ADC200/2000 Access Cover	02/14/05	A
4028-130	Label, Configuration, P/N 962831A-1-S-8, P/N 750004-14	05/02/05	–
4028-T92	Label, Configuration, P/N 962831A-2-S-8, P/N 750004-15	05/02/05	–
4028-T93	Label, Configuration, P/N 962831A-3-S-8, P/N 750004-16	05/02/05	–
N/A	Parts List, OAT Probe Assembly Kit P/N 681201-1	04/06/07	H
N/A	Parts List, Install Kit, ADC2000 MS Conn P/N IK9630A-4	08/01/05	–

REVISION LOG

REV.	DATE	BY	CHANGE
–	05/02/05	EDJ	Baseline Release
A	05/24/05	EDJ	Edited Section 2.2 Parameter Table to clarify TAT accuracy and change IAS to ±2 kt. Edited Section 2.6.3 to clarify that the section pertained to P/N 962831A-( )-S-8.
B	05/26/05	EDJ	Section 3.0 TSO-C44b was TSO-C44a. Edited Section 5.2 mounting location.
C	06/10/05	ZK	Changed Altitude to 42,000 ft. Updated pages 2-1, 2-3, 3-1, and 10-4.
D	08/01/05	ZK	Added Install Kit IK9630A-4. Changed pages 2-1 and 2-3.
E	07/02/07	ZK	Updated Company logo, and 681201-1 Parts List.

The information in this manual is subject to change without notification. To ensure complete and current updates, note the Revision Log above and call Technical Assistance for updated information.

1.0 OVERVIEW

1.1 The Manual

This manual is designed to facilitate the installation of the Shadin ADC2000, Quickstart computer. The F/ADC is delivered from the factory with a standard default configuration, namely P/N 962831A-1-S-8 digital fuel flow (29,200 PPG), twin engine, 962831A-2-S-8 sine fuel flow (33,800 PPG), single engine, 962831A-3-S-8 DC voltage fuel flow, twin engine (46,150 PPG), and Shadin OAT probe. Communication parameters are set for a Trimble and EFIS S (Chelton) format. For settings other than this default configuration see sections 7 and 9 for F/ADC configuration options.

1.2 Product Information

The system is designed to provide a combined source of fuel and air data. Listed below are the navigational systems that the F/ADC has been designed to be compatible with.

<u>Receives Serial Data from:</u>

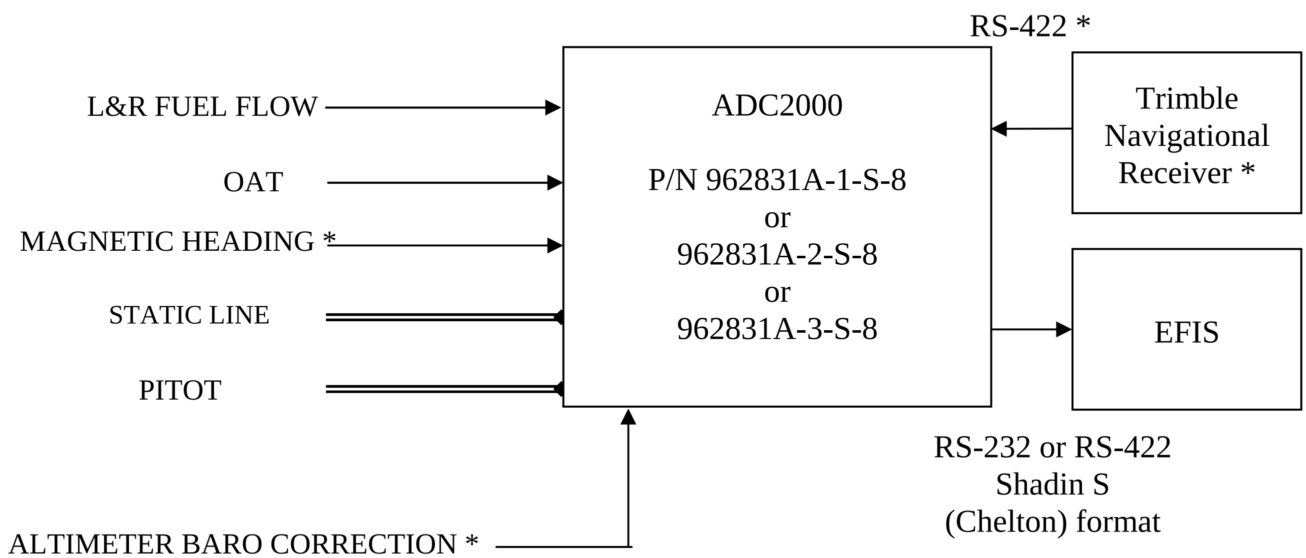
<u>Trimble</u>
2000/2000A
2100/3000
3100/2101

<u>Transmits Serial Data to:</u>

<u>EFIS</u>

1.3 Default System Configuration

The ADC2000, Quickstart system is a remote mounted computer, which is connected to the Navigational receiver and EFIS via serial data links. It is also connected to the pitot and static lines, OAT probe, left and right fuel flow sensors and the aircraft heading source (optional).



*** Optional**

2.0 FUEL AND AIRDATA SYSTEM SPECIFICATIONS

2.1 Input Data Range

Pitot	18 to 350 kt.
Static	-1000 to 42,000 ft.
OAT	-60°C to, +60°C
Heading	0 - 360°
Fuel Flow	1 to 450 GPH Range Selected
K Factor	500 to 130000 PPG Continuous

2.2 Output Data Range

PARAMETER	Accuracy	RANGE
IAS	±2 Kt	18 to 350 Kt.
P.ALT	±25 ft	-1000 to 5000 ft
P.ALT	±30 ft	8000 ft
P.ALT	±35 ft	11000 ft
P.ALT	±40 ft	14000 ft
P.ALT	±45 ft	17000 ft
P.ALT	±50 ft	20000 ft
P.ALT	±75 ft	30000 ft
P.ALT	±100 ft	40000 ft
P.ALT	±105 ft	42000 ft
TAT	±1 ½°C *	-60°C to +60°C
IVS	±40 ft/min	±10,000 ft/min.
FUEL FLOW	±2%	1-450 GPH

* Listed accuracy from -10° to +50°C ambient after warm-up is complete.
TAT accuracy tolerance <± 2°C over entire operating range.

2.3 Dimensions (including mounting tray)

Size: 7.5"L x 4.3"H x 3.9"W
Weight: 3.3 lb.

2.4 Power Requirements

System Power required: 28 VDC @ 1300 mA 14 VDC @ 900 mA

2.5 Output Data

Electric Format: RS-422 or RS-232 Protocol: S (Chelton) format

DATA VARIABLE DEFINITIONS AND UNITS		
S Data Format Label	**Variable Definition**	**Units**
SAddd	Indicated Airspeed	Knots
SDsdddd	Pressure Altitude	10s Feet
Sasdddd	Barometric Altitude	10s Feet
SGsdd	True Air Temperature	Deg. C
SKsddd	Vertical Speed	10s Feet / Minute
SMdddd	Right Fuel Flow	1/10 Gal. / Hour
Sodddd	Left Fuel Flow	1/10 Gal / Hour
DATA VALIDITY		
S Data Format Label	**Definition**	**Purpose**
SQddd	“Q” record	“1” indicates data not valid “0” indicates data is valid
S*ddd	Message Checksum	Used by receiving equipment to validate integrity of received message stream.

2.5.1 Serial Output Data Parameters

Fuel Group	**Airdata Group**	
Left Fuel Flow (LFF)	Indicated Air Speed (IAS)	True Air Temperature (TAT)
Right Fuel Flow (RFF)	Pressure Altitude (PALT)	Barometric Altitude (BALT)
	Vertical Speed (VSPD)	

2.5.2 Start-Up Temperature and Times for Output Data Valid

Typical times for Output Data Valid

Start Temperature	Time for Output Data Valid
+23°C	< 1 minute
-20°C	≈ 2.5 minutes
-55°C	≈ 3.5 minutes

In the Serial Output Data, the “Q” record is used to report if the ADC has completed its warm-up period and the Altitude/Airspeed Data is accurate.

“Q” Record = 0 = data valid
= 1 = data not valid

2.6 Limitations

The conditions and tests required for TSO approval of this article are minimum performance standards. It is the responsibility of those installing this article either on or within a specific type or class of aircraft to determine that the aircraft installation conditions are within the TSO standards. TSO articles must have separate approval for installation in an aircraft. The article may be installed only if performed under 14 CFR part 43 or the applicable airworthiness requirements.

2.6.1 Warm-up time

The Pressure Altitude, Indicated Airspeed, Vertical Speed, and Barometric Altitude are not valid until the “Q” record is valid (i.e. a value of “0”). The installer is responsible to ensure that only valid data is displayed.

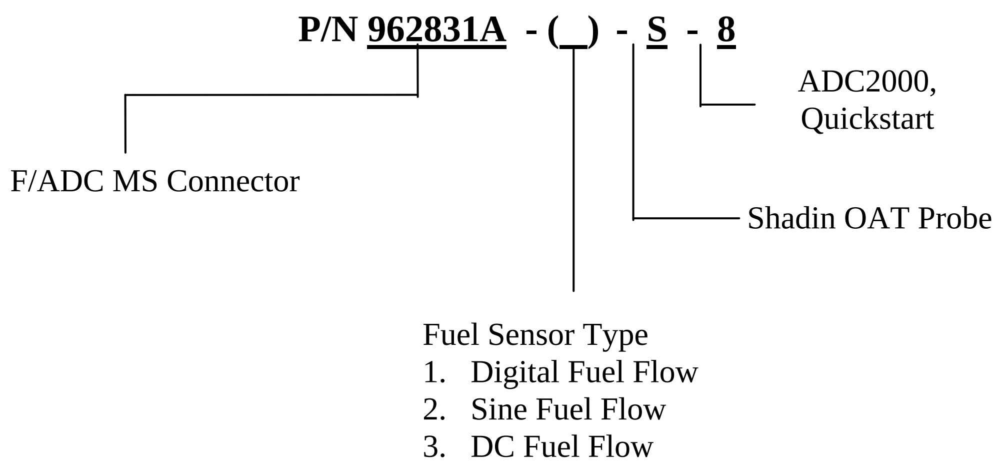
2.6.2 Supplemental equipment

All Shadin F/ADC(s) and ADC(s) are not designed to replace factory installed airdata fuel flow systems or other gauges. The units are not intended to be used as a primary system to drive altimeters or airspeed indicators. The F/ADC fuel section is not a fuel quantity system and therefore reports only what was manually entered by the operator.

2.6.3 Maximum Rated Altitude

P/N 962831A-( )-S-8 ADC2000 is rated to indicate altitudes up to 42,000 feet.

2.7 Part Numbering Scheme



2.8 Electrical Interface Specifications

The specifications for the interfaces heading, fuel flow and baro are listed in this section.

2.8.1 Heading Interface

The heading interface follows the ARINC 407 standard (line voltage of 11.8 Vrms).

Synchro Leg	Input Impedance
H	10 kohm
X	17 kohm
Y	17 kohm

2.8.2 Fuel Flow Interfaces

There are three basic types of fuel flow interfaces supported. The interface type is defined in the ADC2000 part number. Refer to section 2.7 for the part numbering scheme.

If the fuel flow interface is not used, connect the signal inputs together and then to airframe ground. Do not tie-off transducer excitation (TXDR PWR), leave this/these output(s) open or floating.

2.8.2.1 Digital Fuel Flow Interface

The are two possible installations for the digital fuel flow interface, the first is that the ADC is connected to a dedicated fuel flow transmitter, and the second is that the ADC is connected into a fuel flow system.

<u>Dedicated Transmitter</u>

Fuel Flow Interface Input Impedance 47 kohm

<u>Shared Transmitter</u>

Under normal operating conditions the voltage swing (the signal amplitude) can be calculated using $Vs = [R/(R + 47\ k)]*5\ Vdc – 0.5Vdc$, where R is the input impedance of the aircraft fuel flow indicator.

For example with an input impedance R = 1 Mohm, the voltage swing Vs = 4.27 Vdc

With the fuel flow information is encoded in frequency and not amplitude, the loading effects do not produce an error provided the aircraft indicator can detect the signal transitions.

2.8.2.2 Sine Wave Fuel Flow Interface

The interface source signal amplitude varies with frequency. Listed in the table below are the input impedance vs. peak to peak input voltages of the ADC2000 under normal operating conditions.

Input Impedance	Input Voltage
2 Mohm	Input voltage less than or equal to 1.0 Vpp
24.5 kohm	Input voltage greater than 1.0 Vpp

Maximum Input Voltage 10 Vpp

2.8.2.3 DC Voltage Fuel Flow Interface

The DC voltage fuel flow interface has a differential input. The specifications under normal operating conditions are listed below.

Positive input greater than 100 Mohm
Negative input greater than 100 Mohm

Maximum Input Voltage 10.2 Vdc

2.8.3 Baro Interface

The baro interface requires a three-wire connection to the potentiometer housed in the aircraft altimeter[i]. The three connections are the high side, low side and wiper. The specifications under normal operating conditions are listed below.

Input Impedance high side greater than 100 Mohm
Input Impedance low side greater than 100 Mohm
Input Impedance wiper greater than 100 Mohm

Maximum Input Voltage ± 12 Vdc

[i] The altimeters supported are listed in section 9.2 and are dependent upon the ADC2000 software version level.

2.9 Statistical Specifications

2.9.1 Mean Time Between Failures

MTBF: 17,660 hours

3.0 CERTIFICATION

TSO-C106,
TSO-C44b (Incomplete System)

<u>Environmental Categories RTCA/DO-160B</u>

Temp. ALT	F2
Temp. Variation	B
Humidity	A
Shock & Vibration	P, K, S, M, N, O
Magnetic Effect	B
Power Input	B
Voltage Spike	B
AF Conducted Susceptibility	B
Induced Signal Susceptibility	B
RF Susceptibility	A
RF Emission	B

4.0 PLACING AN ORDER

The P/N 962831A-1-S-8, 962831A-2-S-8, and 962831A-3-S-8 (ADC2000, Quickstart) is only available from SHADIN.

5.0 INSTALLATION PROCEDURE

5.1 General

All work must conform to AC 43.13-1B or later.

5.2 F/ADC Location Selection

The Fuel Airdata Computer should be mounted in a dry, temperature stable location with enough distance from motors, pulse generating equipment, relays and cables carrying high DC or AC current to avoid interference with low level signals of the OAT and fuel flow.

The equipment may be installed in a temperature controlled or uncontrolled environment and in a pressurized or unpressurized location. The mounting location should offer rigid support or mounting means to provide isolation from high vibration or shock.

In considering the location, keep in mind that the F/ADC requires signals from the altimeter, fuel flow, the OAT probe, heading system and the pitot and static lines. Placement in the front section of the aircraft is favorable, in order to avoid running all of these signals to the tail of the aircraft.

5.3 Mounting the F/ADC

The computer should be mounted per Drawings 4028-T94, 4028-T95, or 4028-T96, and 4028-395, using the recommended hardware. Any orientation is acceptable. Make sure that the computer is not the lowest point in the pitot and static system, to reduce the chances of collecting moisture or water in it. Form a water trap, if necessary.

5.4 Mounting the OAT Probe

1. Refer to Drawing 4028-005 and OAT Probe Assy Kit 681201-1. Use the supplied stiffener to support the probe. Keep the probe away from transmitting antennas and static ports of autopilots to avoid interference.

2. Refer to Drawing 4028-E30. +5V is supplied to the OAT probe from (red wire) J1:52. The OAT signal is the white (or black) wire from J1:33.

3. The sun shield must be installed for proper indication of OAT.

4. For single engine installation, avoid mounting the OAT probe on the belly of the aircraft to avoid erroneous reading due to the presence of hot exhaust gases.

5. Below is a OAT °C to micro-ampere conversion chart. The amperage can be measured by connecting an ammeter in series between the signal wire of the OAT probe and the F/ADC. This information is provided for trouble shooting purposes only.

OAT ºC	Input µA	OAT ºC	Input µA	OAT ºC	Input µA	OAT ºC	Input µA
-60	213	-20	253	+20	293	+60	333
-50	223	-10	263	+30	303		
-40	233	0	273	+40	313		
-30	243	+10	283	+50	323		

1°C = 1 µA

5.5 Connection to the Heading Source (Optional)

The system is designed to interface with any ARINC-407 heading system (X,Y,Z) with no effect on the heading system or the bootstrap. Refer to Drawing 4028-E30 for more information.

XYZ Heading ARINC 407	FUEL Airdata J1	Collins 328A-2A 2P1	Collins HSI331A P1	Collins MCS 65 P1	Collins 328A-5	King KI525A P2	King KSG105 P1	Sperry Gyro-syn Comp. P1	Sigma-Tek DG	Sandel SN3308	
										P1	P2
X	5	11	S	25	32	s	t	L	A		25
Y	4	4	T	40	22	v	p	M	B		6
Z	7	3	U	24	12	t	k	K	D	4	
H	6	26	V	6	53	r	c	H	E		4
C	7	22	W	5	57	u	f	J	H	4	

The C wire (AC common) and the Z wire must be connected together at the source (bootstrap).

5.6 Connection to the Pitot and Static Lines

The pitot static line should be cut and a tee installed, to tap into these lines. Use the appropriate type of fittings to match the type installed in the aircraft. Use approved practices in installing these lines and perform a leak check before returning the aircraft to service.

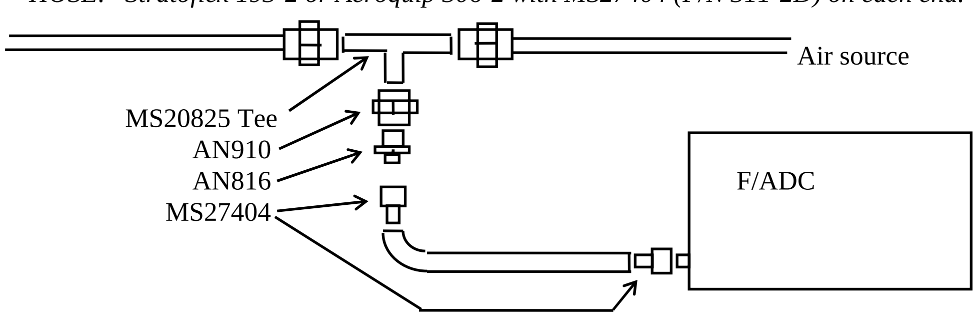
<u>PITOT/STATIC adapter helpful hints</u>
To make an adapter for the Shadin F/ADC, the following parts could be used. It is recommended to use all aluminum fittings.
Existing Pitot/Static lines ⟶ AN910-1D ⟶ AN816-2D ⟶ #2 Hose(with female fittings)

AN910 DASH NUMBER		PIPE
BRASS	ALUM. ALLOY	SIZE
-1	-1D	1/8”
-2	-2D	1/4”
-3	-3D	3/8”
-4	-4D	1/2”
-6	-6D	3/4”
-8	-8D	1”

AN816 DASH NUMBER		TUBE	PIPE
STEEL	ALUM. ALLOY	O. D.	THREAD
-2	-2D	1/8”	1/8”
-3	-3D	3/16”	1/8”
-4	-4D	1/4”	1/8”
-5	-5D	5/16”	1/8”
-6	-6D	3/8”	1/4”
-8	-8D	1/2”	3/8”
-10	-10D	5/8”	1/2”
-12	-12D	3/4”	3/4”
-16	-16D	1”	1”

MS20825 TEE		TUBE	PIPE
STEEL	ALUM. ALLOY	O. D.	THREAD
-2	-2D	1/8”	1/8”
-3	-3D	3/16”	1/8”
-4	-4D	1/4”	1/8”
-5	-5D	5/16”	1/8”

HOSE: Stratoflex 193-2 or Aeroquip 306-2 with MS27404 (P/N 311-2D) on each end.



5.7 Connection to the Navigation Management System

1. Use the appropriate installation wiring diagram (4028-E30) to connect the Fuel Airdata Computer's Connector J1 to the OAT/Heading System.
2. A 2 amp. circuit breaker should be used for powering the system. Mark the C/B "F/ADC" by engraving, painting or other approved method.
3. Keep the cables away from power cables, DME and transponder cables.
4. Refer to the specific Navigational Receiver Installation Manuals for details.

5.8 Post Installation Checkout

1. The pitot and static system must be checked for leaks.
2. Operate the Navigation Management System; select the altitude and airspeed pages. Use the static and pitot test system to check the accuracy of the readout in the Navigation Management System pages.
3. Select heading page. Slew compass through 360°. The error should be within ±1°.
4. Select the OAT page. Compare to the reported ambient temperature. The error should be ±1.5°C.
5. Run the engine(s) and select the fuel flow page. Compare the fuel flow readout with the engine manufacturer's fuel flow charts under the ambient temperature and pressure conditions.

6.0 OPERATING INSTRUCTIONS

1. Power the avionics DC bus and the Navigation Management System .

2. After the warm-up period, density altitude and PALT are available. IAS will be available, but will be out of range until actual airspeed is available. Winds aloft will be available if IAS > 40 Kts and magnetic heading is within 40° of magnetic track.

3. Fuel Flow, Fuel Used, Fuel Remaining, Heading and OAT will be available after power-up.

4. Refer to the specific Navigation Receiver Operator's Manual for page selection of various data.

7.0 INITIALIZATION

The ADC2000, Quickstart comes factory programmed with the following settings:

P/N 962831A-1-S-8		
Parameter	Factory Setting	Selectable?
GPS Input Type	Trimble	Yes
GPS Output Type	Shadin S (Chelton)	No
Transmission Baud Rate	9600 bps	Yes
Left (Single) Engine K-Factor	29,200 PPG	Yes
Right Engine K-Factor	29,200 PPG	Yes
Left (Single) Engine Offset	0	No
Right Engine Offset	0	No
Fuel Units	Gal	Yes
Number of Engines	2	Yes
Fuel Flow Filter Type	Injector	Yes
SSEC Type	None	Yes
OAT Probe Type	Shadin	Yes
K-Factor Table	Standard	Yes
Fuel Flow Delay	None	Yes
Status	NCD	Yes
Altimeter Type	None	Yes

P/N 962831A-2-S-8		
Parameter	Factory Setting	Selectable?
GPS Input Type	Trimble	Yes
GPS Output Type	Shadin S (Chelton)	No
Transmission Baud Rate	9600 bps	Yes
Left (Single) Engine K-Factor	33,800 PPG	Yes
Left (Single) Engine Offset	0	No
Fuel Units	Gal	Yes
Number of Engines	1	Yes
Fuel Flow Filter Type	Injector	Yes
SSEC Type	None	Yes
OAT Probe Type	Shadin	Yes
K-Factor Table	Standard	Yes
Fuel Flow Delay	None	Yes
Status	NCD	Yes
Altimeter Type	None	Yes

Note 1: Some of the parameters listed above can be reconfigured. To change the parameters, refer to section 9.

7.0 INITIALIZATION (continued)

The 962831A-3-S-8 ADC2000, Quickstart comes factory programmed with the following settings:

P/N 962831A-3-S-8		
Parameter	Factory Setting	Selectable?
GPS Input Type	Trimble	Yes
GPS Output Type	Shadin S (Chelton)	No
Transmission Baud Rate	9600 bps	Yes
Left (Single) Engine K-Factor	46,150 PPG	Yes
Right Engine K-Factor	46,150 PPG	Yes
Left (Single) Engine Offset	0	No
Right Engine Offset	0	No
Fuel Units	Gal	Yes
Number of Engines	2	Yes
Fuel Flow Filter Type	Injector	Yes
SSEC Type	None	Yes
OAT Probe Type	Shadin	Yes
K-Factor Table	Standard	Yes
Fuel Flow Delay	None	Yes
Status	NCD	Yes
Altimeter Type	None	Yes

Note 1: Some of the parameters listed above can be reconfigured. To change the parameters, refer to section 9.

8.0 MAJOR COMPONENTS OF THE SYSTEM

1. Navigational Receiver Input/Output (Optional)
2. Fuel/Airdata Computer
3. Heading Source (Optional)
4. Outside Air Temperature Probe Assembly, P/N 681201-1

9.0 CONFIGURING THE AIRDATA

Part number 962831A-1-S-8, 962831A-2-S-8, and 962831A-3-S-8 ADC2000, Quickstart comes factory configured, refer to section 7 for default settings. Should the ADC2000 require a different configuration, use the procedure contained in this Installation Manual. There are two methods to accomplish this task. The first method is to follow the procedures as set forth in the 'ADSETUPF User Manual'. The second method is to manually enter the information by performing a ‘Loop-Back’ procedure.

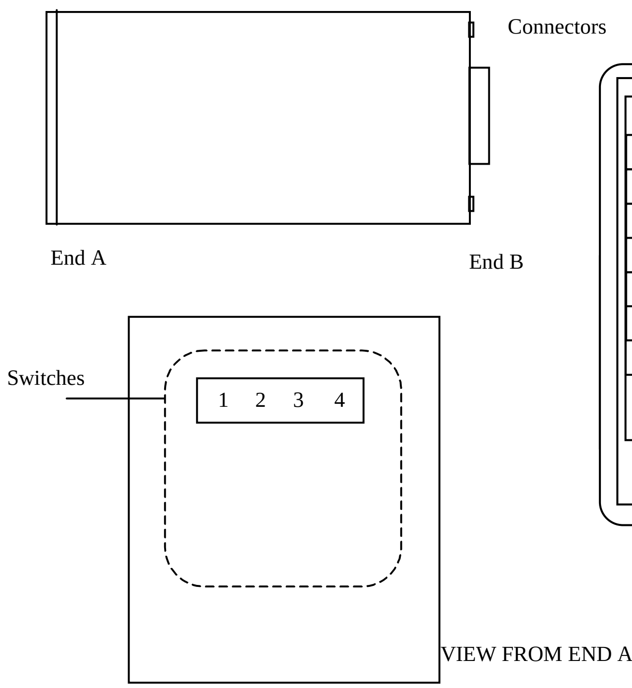
9.1 Configuring with 'ADSETUPF User Manual'

The 'ADSETUPF' is a configuration utility that allows setting the F/ADC configuration by running a program on a PC. The PC is connected to the unit via the serial communication port. Following the steps as set forth in the user manual allow the Airdata to be configured. See the 'ADSETUPF User Manual' for more details.

9.2 Configuring Manually (Loop-Back)

The switches, that are available from the back side of the F/ADC, need to be set to the appropriate positions as determined by the switch settings listed below. After the correct switch positions have been selected, the unit is powered using the 'Loop-Back' harness (consult drawing number 4028-A62 contained in section 11). The purpose of the 'loop back' harness is to tie the RS-232 transmit and receive ports together. This allows the software, when the unit is powered on, to read the switch positions. Switch 1 is set to different positions to select the separate stages that the loopback is performing. Remember to cycle power between stages and that the F/ADC is to be powered on for 1 minute for each stage.

The following figure shows the approximate switch positions:



CONFIGURATION			
STAGE			
SW1	SW2	SW3	SW4
0	8	0	0
1	0	6	0
2	0	0	0
3	0	0	0
4	0	0	0
FACTORY SET FOR CHELTON INSTALLATION: REFER IM2831-AYS8			

P/N 962831A-1-S-8 shown

9.3 Loopback Procedure for Software Version 93.05.03 and above

Stage 0 Loopback Configuration:

Switch 1 is set to 0 to indicate that the stage 0 loopback is being performed.

SWITCH 2 Fuel Units and Engine Type:

0	-	Gallons	Single Engine
1	-	Liters	" "
2	-	Lbs 5.8	" "
3	-	Lbs 6.71	" "
4	-	Kilograms	" "
5	-	Lbs 6.5	" "
6	-	Lbs 6.35	" "
7	-	(not used)	" "
8	-	Gallons	Twin Engine
9	-	Liters	" "
A	-	Lbs 5.8	" "
B	-	Lbs 6.71	" "
C	-	Kilograms	" "
D	-	Lbs 6.5	" "
E	-	Lbs 6.35	" "
F	-	(DO NOT USE)	

SWITCH 3 9600 BAUD Loran Input Type:

0	-	Trimble
1	-	ARNAV
2	-	Bendix or IIMorrow Apollo NMS2001, 800, 820
3	-	Garmin
4	-	Northstar
5	-	Foster
6	-	IIMorrow 611, 612 and 618
7	-	Shadin Flow Meter
8-E	-	(DO NOT USE)
F	-	Use this position to make selection on SWITCH 4

SWITCH 4 Other Loran Input Type:

0	-	Northstar, 1200 BAUD
1	-	Foster, 1200 BAUD
2	-	IIMorrow 611, 612, 618; 1200 BAUD
3-F	-	(DO NOT USE)

Stage 1 Loopback Configuration:

Switch 1 is set to 1 to indicate that the stage 1 loopback is being performed.

SWITCH 2 OAT Probe Type:

0	-	Shadin OAT Probe
1	-	ARINC 575 (DO NOT USE)
2	-	Rosemount 500 Ω (DO NOT USE)
3-F	-	(DO NOT USE)

SWITCH 3 Loran Output Type:

0-5	-	(DO NOT USE)
6	-	Chelton
7-F	-	(DO NOT USE)

SWITCH 4 Altimeter Selection for Baro DC Input:

0	-	None
1	-	Type 1
2	-	Type 2
3	-	Type 3
4	-	Type 4
5	-	Type 5
6	-	Type 6
7	-	Type 7
8	-	(DO NOT USE)
9	-	Type 9
A-F	-	(DO NOT USE)

ALTIMETER TYPES

Type 1: Kollsman PD 44929-935 (done for Cessna 525).

Type 2: Bendix/King KEA 130A, and KEA 346 versions (King P/N 066-3062-XX) XX = 08 through 11, versions 00 though 07 have no Baro Potentiometer.

Type 3: ARINC 575-3 specification for ratio to Altitude Correction calculation.
Kollsman IDC 28007-427, -429,
Kollsman IDC 28704-A1001, -A2001, -A4001, -B4001, -C4001, -D1001, -D2001, -D4001, -D4101, -4E2101, -F2101, and -495.

Type 4: Kollsman IDC 28711-621 thru 624.

Type 5: Kollsman IDC 28007-431, -433,
Honeywell (Sperry) BA-141.

Type 6: Kollsman IDC 28711-500 series and -600 series.

Type 7: Kollsman IDC 28711-065 and -066.

Type 8: Reserved for future use (DO NOT USE).

Type 9: Aerosonic P/N 102220-1188T, P/N 10420-11968E.

Stage 2 Loopback configuration:

Switch 1 is set to 2 to indicate that the stage 2 loopback is being performed.

SWITCH 2		Fuel Filter Type:
0	-	Injector
1	-	Carburetor

SWITCH 3	AND SWITCH 4	CORRECTION For SSEC/PSEC Select:	F/ADC Software Version:
0	0	- No correction	ALL
0	1	- MITSUBISHI MU-300	93.05.03 and up
0	2	- CESSNA CITATION 500/501	93.05.03 and up
0	3	- CESSNA 525	93.05.03 and up
0	4	- CESSNA 550	93.05.03 and up
0	5	- Citation 560 SN <=259	93.05.03 and up
0	6	- Citation 560 SN >=260	93.05.03 and up
0	7	- Citation 650	93.05.03 and up
0	8	- Sabreliner 65	93.05.03 and up
0	9	- WestWind 1124A	93.05.03 and up
0	A	- LearJet 24	93.05.03 and up
0	B	- Raytheon Hawker HS 125-3A	93.05.03 and up
0	C	- Falcon 20-F	93.05.03 and up
0	D	- Falcon 20-C, D, E	93.05.03 and up
0	E	- LearJet 25D	93.05.03 and up
0	F	- Douglas DC-8	93.05.03 and up
1	0	- Beechjet 400	93.05.03 and up
1	1	- Boeing 707-321B	93.05.03 and up
1	2	- Cessna Citation S550	93.05.03 and up
1	3	- Falcon 10	93.05.03 and up
1	4	- Falcon 50	93.05.03 and up
1	5	- Raytheon Hawker HS125-700A	93.05.03 and up
1	6	- LearJet 35	93.05.03 and up
1	7	- LearJet 55	93.05.03 and up
1	8	- Sabreliner 60 (SSEC Only)	93.05.03 and up
1	9	- Lockheed Jetstar II	93.05.03 and up
1	A-F	- Reserved for future (DO NOT USE)	

Stage 3 Loopback configuration:

Switch 1 is set to 3 to indicate that the stage 3 loopback is being performed.

SWITCH 2, K-FACTOR TABLE SELECTION:

0	-	Standard K-FACTOR Matrix 0 - (Table 1 in this manual)
1	-	Alternate K-FACTOR Matrix 1- (Table 2 in this manual)
2-F	-	(DO NOT USE)

SWITCH 3, FUEL FLOW DELAY TIME

0	-	No Delay
1	-	5 Second Delay
2	-	10 Second Delay
3	-	15 Second Delay
4	-	20 Second Delay
5	-	25 Second Delay
6	-	30 Second Delay
7	-	35 Second Delay
8	-	40 Second Delay
9	-	45 Second Delay
A-F	-	(DO NOT USE)

Stage 4 Loopback configuration:

Switch 1 is set to 4 to indicate that the stage 4 loopback is being performed. Refer to the OAT probe calibration certificate for the Ta, Tb, Tc calibration code selection.

<u>SWITCH 2, OAT Ta CALIBRATION CODE SELECTION:</u>

0-F - Refer to calibration certificate for “A” code selection 0 to F.

<u>SWITCH 3, OAT Tb CALIBRATION CODE SELECTION</u>

0-F - Refer to calibration certificate for “B” code selection 0 to F.

<u>SWITCH 4, OAT Tc CALIBRATION CODE SELECTION</u>

0-F - Refer to calibration certificate for “C” code selection 0 to F.

Note: Switch 2, 3, and 4 are set to position 0 (zero), if the OAT probe does not have a calibration code marking, (i.e. A=0, B=0, C=0).

SELECT NO DELAY

Only under special circumstances should a fuel flow delay time other than “No Delay” be selected. Read the following paragraphs for a description of these special circumstances.

On a few aircraft installations which have digital fuel flow and use a very low K factor (858 pulses per gallon), there has been a problem with the Airdata reporting a large jump in fuel used as well as a corresponding decrease in fuel remaining at engine startup. This is not considered to be a Shadin Airdata problem, but rather has been defined as an aircraft problem involving noise on the digital fuel flow signal.

A solution for this problem is to use the Airdata fuel flow delay feature. This feature suppresses the fuel flow (and its effect on fuel used and remaining) for a startup delay time each time the engine starts. Fuel flow delay time is selectable in the Airdata loopback mode, with selections of 0, 5, 10, 15, 20, 25, 30, 35, 40, and 45 seconds delay available.

If a fuel flow delay is needed, start by reconfiguring the ADC to use a large delay (i.e. 45 seconds). If the large fuel flow mitigated the problem, try reducing the delay until the problem returns. Then use the least amount of fuel flow delay that suppresses the problem.

When a fuel flow delay time is selected, the Airdata checks for fuel flow below 15 pph. If the fuel flow is below 15 pph, the Airdata considers the engine to be off and returns a fuel flow of 0. Then as soon as the fuel flow exceeds 15 pph, the Airdata continues to return a fuel flow of 0 until the delay time has expired. In a twin engine, the Airdata zeroes both fuel flows during the startup delay for each engine.

SPECIAL OPTIONS

Only under special circumstances should SPECIAL OPTION 1 be selected. Read the following paragraphs for a description of the special circumstance.

Because the IAS range on the Airdata computer is valid from 20 to 350 knots, ARINC 429 labels 206 and 210 are transmitted with NCD status and stop being transmitted almost simultaneously if the IAS is less than 20 knots. In order to interface with certain avionics equipment which exhibit warnings if a valid IAS or TAS label is not received, SPECIAL OPTION 1 was implemented.

When the Airdata computer is configured with SPECIAL OPTION 1, the Arinc 429 labels 206 and 210 are transmitted with OK status and a value of zero knots if the actual IAS is less than 20 knots.

10.0 SETTING THE K FACTOR

The process of setting the K Factor is needed to match the F/ADC to the aircraft fuel flow system characteristics. To set the K Factor into the F/ADC you must first determine whether it is an Analog, Digital or Sine Fuel Flow unit.

P/N	FUEL FLOW TYPE
962831A-1-S-8	Digital
962831A-2-S-8	Sine Wave
962831A-3-S-8	DC Voltage

Use the switch settings from the appropriate table to set the K Factor.

The Digital F/ADC (P/N 962831A-1-S-8) comes factory programmed for a twin engine aircraft and K-Factor settings of 29,200 PPG. If changing the K Factor is required refer to Tables 1 and 2 for additional selections.

Switches 1 & 2 select the left K Factor
Switches 3 & 4 select the right K Factor

For a single engine system, only use switches 1 & 2.

The Sine F/ADC (P/N 962831A-2-S-8) comes factory programmed for a single engine aircraft and K Factor setting of 33800 PPG. If changing the K Factor is required, refer to Tables1 and 2

Switch 1 & 2 selects the left K Factor

Due to possible fuel flow system peculiarities, switch 1 & 2 do not necessarily need to be set to the same setting. For a single engine system, only use switches 1 & 2.

The DC F/ADC (P/N 962831A-3-S-8) comes factory programmed for a twin engine aircraft and K-Factor settings of 46,150 PPG with zero offset. If changing the K Factor is required refer to Table 3 for additional selections.

Switches 1 & 2 selects the main engine K Factor
Switches 3 & 4 select the Offset

Configuration is now complete.

Matrix 0 - Digital K Factor Settings

PPG	SW1	SW2	PPG	SW1	SW2	PPG	SW1	SW2
860	D	D	8800	5	0	15300	E	F
5000	6	B	9000	5	1	18000	3	0
5050	6	C	9200	5	2	18200	3	1
5100	6	D	9400	5	3	18400	2	2
5150	6	E	9600	5	4	18600	3	3
5200	6	F	9800	5	5	18800	3	4
5250	7	0	10000	5	6	19000	3	5
5300	7	1	10100	5	7	19200	3	6
5600	6	0	10200	5	8	19400	3	7
5650	6	1	10300	5	A	19600	3	8
5700	6	2	10400	5	B	19800	3	9
5750	6	3	10500	5	C	20000	3	A
5800	6	4	10600	5	D	20200	3	B
5850	6	5	10700	5	E	20400	3	C
5900	6	6	10800	5	F	20600	3	D
5950	6	7	10900	D	6	20800	3	E
6000	6	8	11000	D	7	21000	3	F
6380	C	B	11100	D	8	21200	4	0
6400	C	C	11200	D	9	21400	4	1
6420	C	D	11300	D	A	21600	4	2
6440	C	E	11400	D	B	21800	4	3
6460	C	F	11500	D	C	22000	4	4
6480	D	0	14500	D	E	22200	4	5
6500	D	1	14600	D	F	22400	4	6
6520	D	2	14700	E	9	22600	4	7
6540	D	3	14800	E	A	22800	4	8
6560	D	4	14900	E	B	23000	4	9
6580	D	5	15000	E	C	23200	4	A
6660	6	A	15100	E	D	23400	4	B
7640	5	9	15200	E	E	23600	4	C

Table 1

Matrix 0 - Digital K Factor Settings
(Continued)

PPG	SW1	SW2	PPG	SW1	SW2	PPG	SW1	SW2
23800	4	D	29800	F	B	40000	9	4
24000	4	E	30000	F	C	40200	9	5
24200	4	F	30200	F	D	40400	9	6
24400	B	A	30400	F	E	40600	9	7
24600	B	B	33800	6	9	40800	9	D
24800	B	C	37000	B	9	41000	9	E
25000	B	D	37200	B	8	41200	9	F
25200	B	E	37400	B	7	41400	1	0
25400	B	F	37600	B	6	41600	1	1
25600	C	0	37800	B	5	41800	1	2
25800	C	1	38000	8	0	42000	1	3
26000	C	2	38100	8	1	42200	1	4
26200	C	4	38200	8	2	42400	1	5
26400	C	5	38300	8	3	42600	1	6
26600	C	6	38400	8	4	42800	1	7
26800	C	7	38500	8	5	43000	1	8
27000	C	8	38600	8	6	43200	1	9
27200	C	9	38700	8	7	43400	1	A
27400	C	A	38800	8	8	43600	1	B
27600	F	0	38900	8	9	43800	1	C
27800	F	1	39000	8	A	44000	1	D
28000	F	2	39100	8	B	44200	1	E
28200	F	3	39200	8	C	44400	1	F
28400	F	4	39300	8	D	44600	2	0
28600	F	5	39400	8	E	44800	2	1
28800	F	6	39500	8	F	45000	2	2
29000	F	7	39600	9	0	45200	2	3
29200	F	8	39700	9	1	45400	2	4
29400	F	9	39800	9	2	45600	2	5
29600	F	A	39900	9	3	45800	2	6

Table 1 continued

Matrix 0 - Digital K Factor Settings (Continued)

PPG	SW1	SW2	PPG	SW1	SW2	PPG	SW1	SW2
46000	2	7	57700	A	7	93000	7	2
46200	2	8	57800	A	8	94000	7	3
46400	2	9	57900	A	9	95000	7	4
46600	2	A	58000	A	A	96000	7	5
46800	2	B	58100	A	B	97000	7	6
47000	2	C	58200	A	C	98000	7	7
47200	2	D	58300	A	D	99000	7	8
47400	2	E	58400	A	E	100000	7	9
47600	2	F	58500	A	F	101000	7	A
49000	9	8	58600	B	0	102000	7	B
49100	9	9	58700	B	1	103000	7	C
49200	9	A	58800	B	2	104000	7	D
49300	9	B	58900	B	3	105000	7	E
49400	9	C	60000	B	4	106000	7	F
49500	E	2	77000	0	0			
49700	E	3	78000	0	1			
50000	E	4	79000	0	2			
50200	E	5	80000	0	3			
50400	E	6	81000	0	4			
50500	E	7	82000	0	5			
50800	E	8	83000	0	6			
55500	C	3	84000	0	7			
55550	F	F	85000	0	8			
57000	A	0	86000	0	9			
57100	A	1	87000	0	A			
57200	A	2	88000	0	B			
57300	A	3	89000	0	C			
57400	A	4	90000	0	D			
57500	A	5	91000	0	E			
57600	A	6	92000	0	F			

Table 1 continued

Matrix 1 - Alternate Digital K-Factor Setting Table

PPG	SW1	SW2	PPG	SW1	SW2	PPG	SW1	SW2
200	1	0	1940	8	0	16100	4	E
400	1	1	2000	3	D	16300	4	F
440	1	2	2200	3	E	16500	5	0
490	1	3	2400	3	F	16600	5	1
510	1	4	2600	4	0	16800	5	2
520	1	5	2800	4	1	17000	5	3
530	1	6	3000	4	2	17200	5	4
540	1	7	3200	4	3	17400	5	5
550	1	8	3400	4	4	17600	5	6
560	1	9	3600	4	5	17800	5	7
570	1	A	3610	0	0	30600	6	3
580	1	B	3650	0	1	30800	6	4
590	1	C	3690	0	2	31000	6	5
600	1	D	3730	0	3	31200	6	6
610	1	E	3760	0	4	31400	6	7
620	1	F	3800	0	5	31600	6	8
630	2	0	3800	4	6	31800	6	9
640	2	1	3840	0	6	32000	6	A
650	2	2	3880	0	7	32200	6	B
660	2	3	3920	0	8	32400	6	C
670	2	4	3960	0	9	32600	6	D
680	2	5	4000	0	A	32800	6	E
690	2	6	4000	4	7	33000	6	F
700	2	7	4040	0	B	33200	7	0
710	2	8	4080	0	C	33400	7	1
720	2	9	4120	0	D	33600	7	2
730	2	A	4160	0	E	34000	7	3
740	2	B	4200	0	F	34200	7	4
750	2	C	4200	4	8	34400	7	5
760	2	D	4400	4	9	34600	7	6
770	2	E	4700	4	A	34800	7	7
780	2	F	11700	5	8	35000	7	8
790	3	0	11900	5	9	35200	7	9
800	3	1	12100	5	A	35400	7	A
810	3	2	12400	5	B	35600	7	B
820	3	3	12600	5	C	35800	7	C
840	3	4	12800	5	D	36000	7	D
850	3	5	13000	5	E	36400	7	E
880	3	6	13500	5	F	36800	7	F
900	3	7	14000	6	0			
1000	3	8	14200	6	1			
1200	3	9	14400	6	2			
1400	3	A	15500	4	B			
1600	3	B	15700	4	C			
1800	3	C	15900	4	D			

Table 2

DC Voltage Fuel Flow K-Factor Settings Table

Manufacturer	Model	SW1	SW2	SW3	SW4	K-Factor	Offset
Beech	KingAir B200	0	0	0	1	77000	416
Beech	KingAir A100	0	1	0	2	26150	875
Beech	KingAir C90	0	1	0	2	26150	875
Beech	KingAir F90	0	0	0	1	77000	416
Beech	KingAir C90A	0	0	0	1	77000	416
Beech	KingAir 200	0	0	0	1	77000	416
Beech	BeechJet	0	2	0	0	11540	0
Beech	KingAir B100	0	3	0	2	26150	875
Beech	Beech 600	0	4	0	0	38460	0
Beech	Beech 750	0	5	0	0	30770	0
Beech	Beech 800	0	6	0	0	28850	0
Cessna	Citation, Ametek Gauge, VSDL-02 C208E	0	C	0	0	16270	0
Cessna	Citation, Simmons Gauge 393002-009	1	C	0	0	14300	0
Cessna	Citation II/SII	0	C	0	0	16270	0
Cessna	Citation III	0	D	0	4	9620	1094
Cessna	Model 525	0	E	0	0	21980	0
Piper	Cheyenne III	1	9	0	0	41960	0
Piper	Cheyenne IV	1	1	0	0	46150	0
Lear	Learjet	0	7	0	0	15380	0
Lear	Model 36 (5V)	0	2	0	0	11540	0
Lear	Model 36 (10V)	0	8	0	0	23080	0
Boeing	Boeing-737-300	0	9	0	3	1790	0
British Aero	BAE ATP	0	7	0	0	15380	0
British Aero	BAE-125-800	0	A	0	0	8240	378
British Aero	HS-125	0	B	0	0	10490	0
Canadian	CL600	0	F	0	0	6590	0
Canadian	CL601	1	0	0	0	5130	0
Dornier	DO-228	1	1	0	0	46150	0
Daussault	FALCON 10	1	2	0	0	11540	0
Daussault	FALCON 20	1	2	0	0	7690	0
Daussault	TFE-371	1	2	0	0	7690	0
Swearngen	MERLIN	0	4	0	0	38460	0
Gulfstream	GULFSTREAM II	1	3	0	0	2880	0
Gulfstream	GULFSTREAM III	1	4	0	0	2310	0
Aerospatiale	PUMA	1	5	0	0	76920	0
DHC	DHC DASH 8	1	6	0	0	19230	0
IAI	ASTRA 1125	1	7	0	5	9230	2188
IAI	WESTWIND 1124	1	8	0	0	10490	0
Sikorsky	S-76A	1	1	0	0	46150	0
Sikorsky	S-76B	0	6	0	0	28850	0
Sabre	SABRE 65	1	7	0	5	9230	2188

Table 3

SECTION 11.0

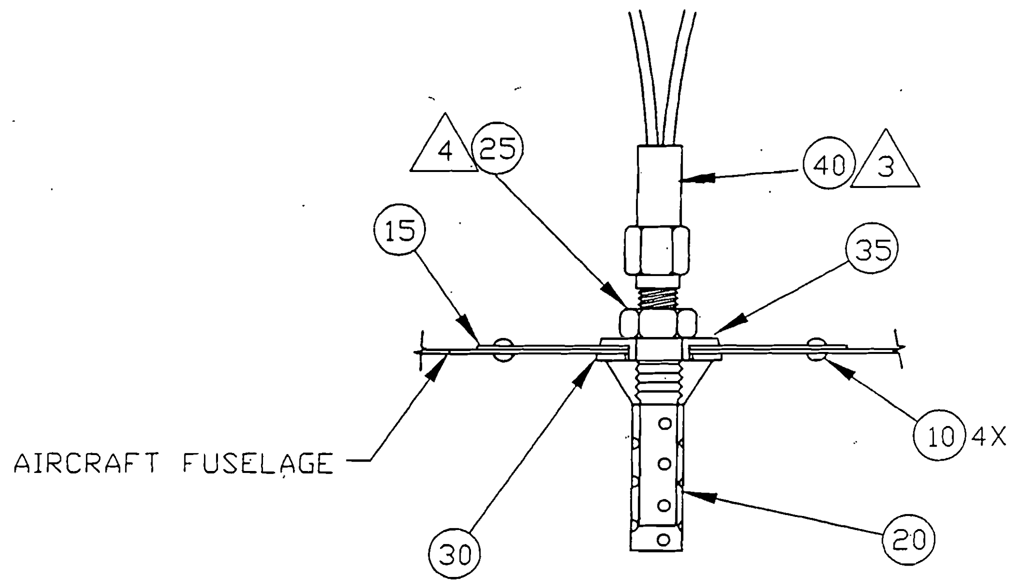
INSTALLATION DRAWINGS AND INSTALL KIT PARTS LISTS

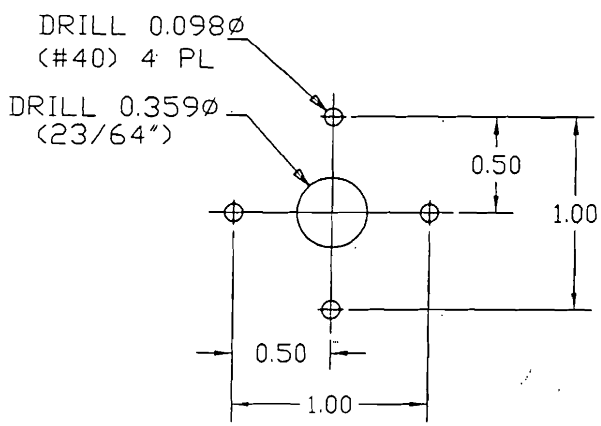
NOTES:

1. REFERENCE P/N 681201-1 OAT PROBE ASSEMBLY KIT
2. AVOID INSTALLING OAT PROBE IN OR NEAR:
   - PROP AIRSTREAM
   - ENGINE EXHAUST FLOW PATH
   - CABIN HEATERS EXHAUST FLOW PATH
   - TRANSMITTING ANTENNAS (DME, TXP, COMM.)
   - DARK PAINTED AREAS

△3 OAT PROBE, P/N 681201

△4 TORQUE NUT, FN 25, TO 1.3 IN-LBS (MAX)





DETAIL A

MOUNTING HOLE DETAIL

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
0501/032	C	2-14-05	PAB	[illegible]	UPDATED TITLE BLOCK & NOTE 4; ADDED 'KIT' TO TITLE
0111/001	B	11/14/01	PAB	KCL	STANDARDIZED DWG FORMAT TO MIMIC DWG NO. 4012-177
0002/036	A	3/11/96	WMP	PG	CONVERT TO CAD; ADD NOTES 1 AND 3
N/A	-	4/8/91	DAP	SES	BASELINE RELEASE

UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES TOLERANCES: ±0.01

FINISH: N/A

MATERIAL: N/A

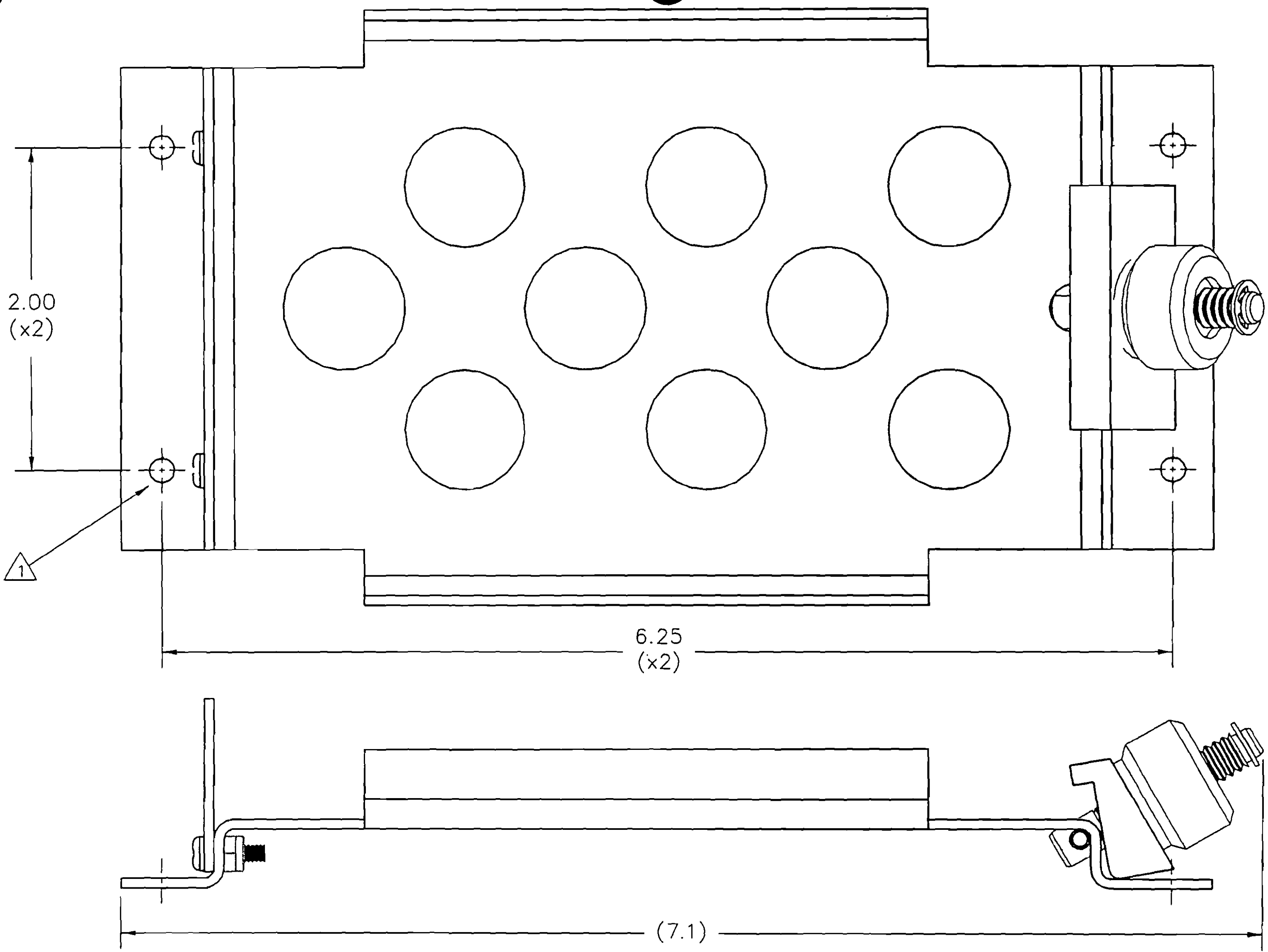
SCALE: NONE

DRAWING DATE 4/8/91 | DRAFTER DAP | APPROVED SES | FILE NAME 681201-1CJ.DWG | DIRECTORY 681201-1 | SHEET 1 OF 1

SHADIN MINNEAPOLIS, MN 55426

INSTALLATION, OAT PROBE ASSEMBLY KIT

DRAWING NO. 4028-005 | SIZE A | P/N681201-1 | REV C



NOTES:

1. (Δ) USE #6 MOUNTING HARDWARE.
2. (DELETED).
3. USE THIS DRAWING TO INSTALL SHADIN P/N 612826B, 612826A, OR 612826 MOUNTING TRAY.

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
0507/053	C	8/1/05	PAB	[illegible]	CH. NOTE 3
0501/032	B	3/3/05	PAB	WMP	DELETED NOTE 2 & 10 DIMENSIONS; ADDED NOTE 3
0211/047	A	2/7/03	PAB	BAL	ADDED DIMENSIONS
9512/017	–	12/13/95	WMP	SES	BASELINE RELEASE

3D CAD FILE AVAIL: YES

UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES
TOLERANCES: X.X – ±0.1
X/X ± 1/64 X.XX – ±0.01
∠– ±1° X.XXX – ±0.005

FINISH: N/A

MATERIAL: N/A

SCALE: 1 : 1

DRAWING DATE 9/22/94
DRAFTER PAB
APPROVED SES
FILE NAME 4028-395CJ.DWG
DIRECTORY 4028
SHEET 1 OF 1

SHADIN MINNEAPOLIS, MN 55426

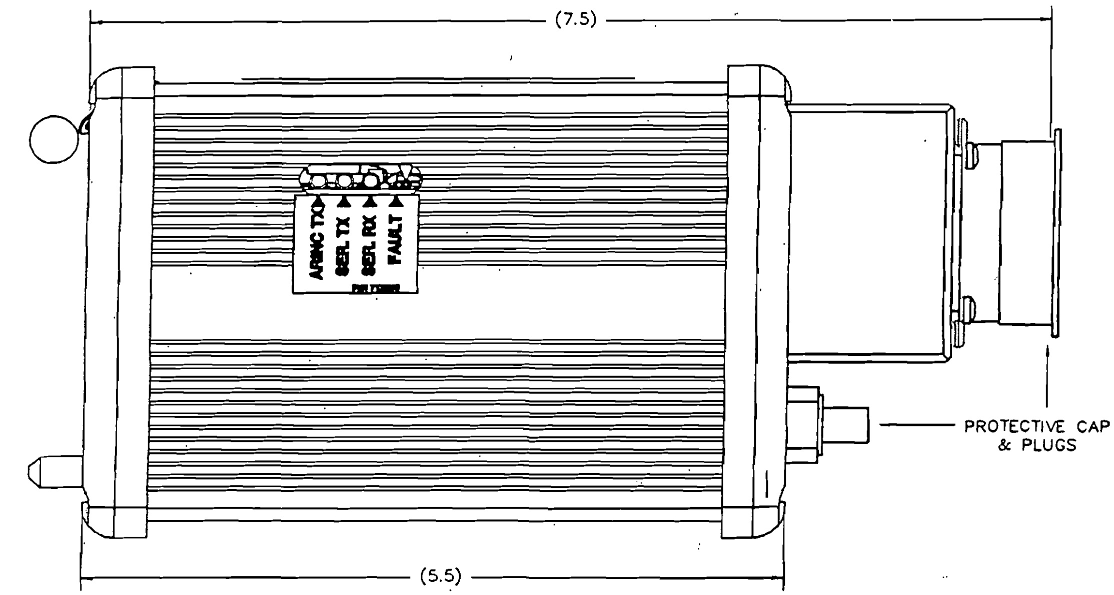
INSTALLATION, MOUNTING TRAY, ADC2000

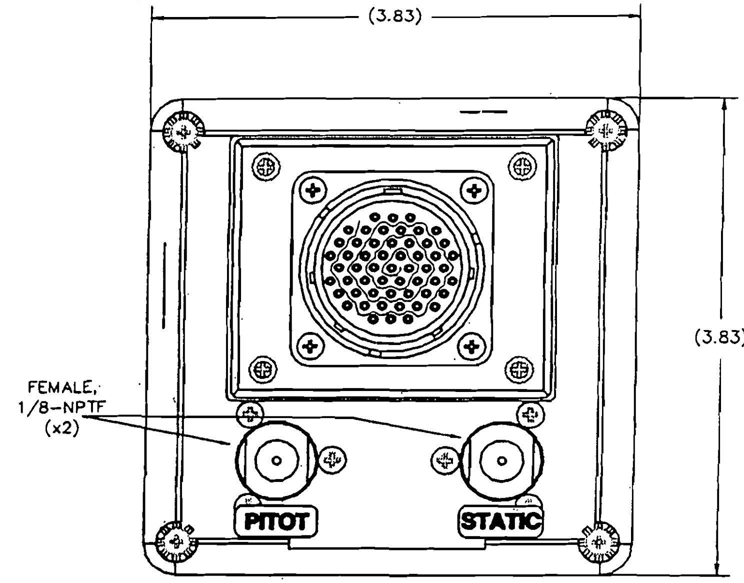
DRAWING NO. 4028-395 | SIZE A | P/N ------ | REV C

NOTES:

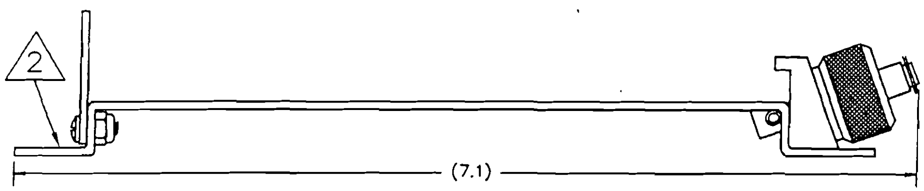
1. INSTALLED WEIGHT = 2.8 LB.
2. (triangle 2) USE FOUR #6 MOUNTING SCREWS.
3. (triangle 3) FOR COMMUNICATION (RX/TX) WITH LORAN OR GPS. USE EITHER RS232 OR RS422 NOT BOTH.
4. (triangle 4) RS232 PORT 2 RESERVED FOR FUTURE USE

MATING CONNECTOR:
SUPPLIED AS PART OF INSTALLATION KIT
P1
CONN. MS24266R22B55SN (P/N 233272)
CLAMP MS27291-6 (P/N 233273)





FRONT VIEW / CAP & PLUGS REMOVED



RIGHT SIDE VIEW

J1 PINOUT
1. N/C
2. HEADING Y-SYNCHRO INPUT
3. N/C
4. SHIELD GROUND
5. BARO INPUT +
6. N/C
7. HEADING X-SYNCHRO INPUT
8. N/C
9. TX, RS232 (triangle 4)
10. LEFT FF TXDR GROUND

J1 PINOUT
11. N/C
12. LEFT DIGITAL FF INPUT
13. N/C
14. N/C
15. N/C
16. BARO INPUT −
17. N/C
18. HEADING 26 VAC. H
19. TX, RS422 (−)
20. RX, RS422 (−) (triangle 3)

J1 PINOUT
21. TX, RS232
22. RESERVED (ARINC 429 B)
23. RIGHT FF TXDR GROUND
24. RIGHT DIGITAL FF INPUT
25. N/C
26. LEFT TXDR POWER
27. N/C
28. N/C
29. N/C
30. N/C
31. N/C
32. N/C

J1 PINOUT
33. OAT SIGNAL
34. N/C
35. HEADING 26 VAC C
36. TX, RS422 (+)
37. FLAG (RESERVED)
38. RX, RS422 (+) (triangle 3)
39. RX, RS232 (triangle 3)
40. RESERVED (ARINC 429 A)
41. N/C
42. RX RS232 (triangle 4)
43. RIGHT TXDR POWER
44. N/C

J1 PINOUT
45. N/C
46. N/C
47. N/C
48. N/C
49. N/C
50. N/C
51. N/C
52. OAT POWER
53. BARO WIPER
54. POWER GROUND
55. +28V

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
0504/046	–	05/02/05	PAB	EDJ	BASELINE RELEASE

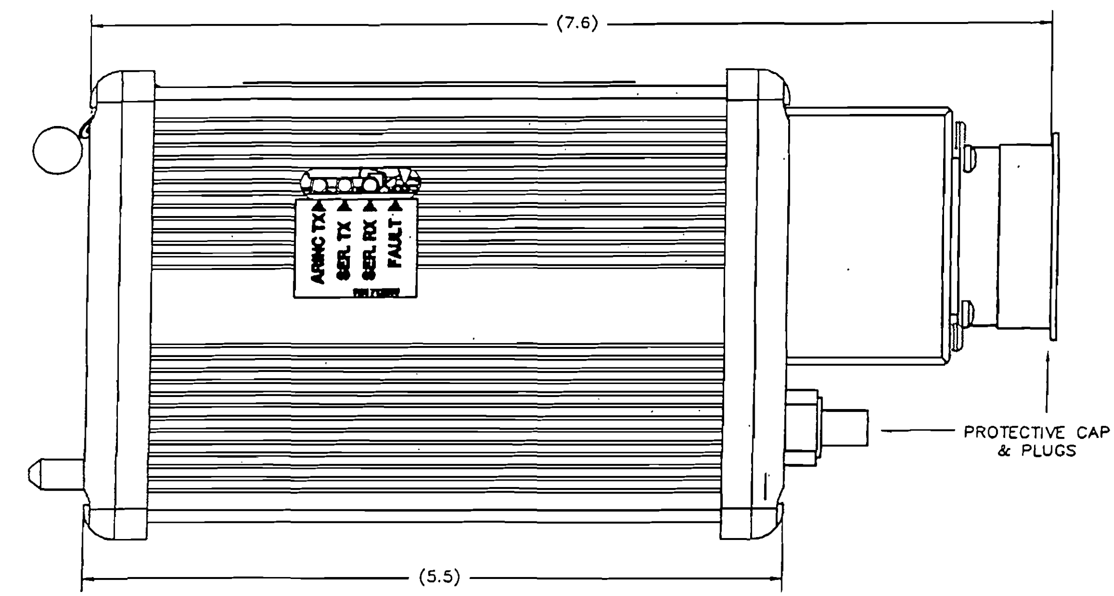
DO NOT SCALE DRAWING

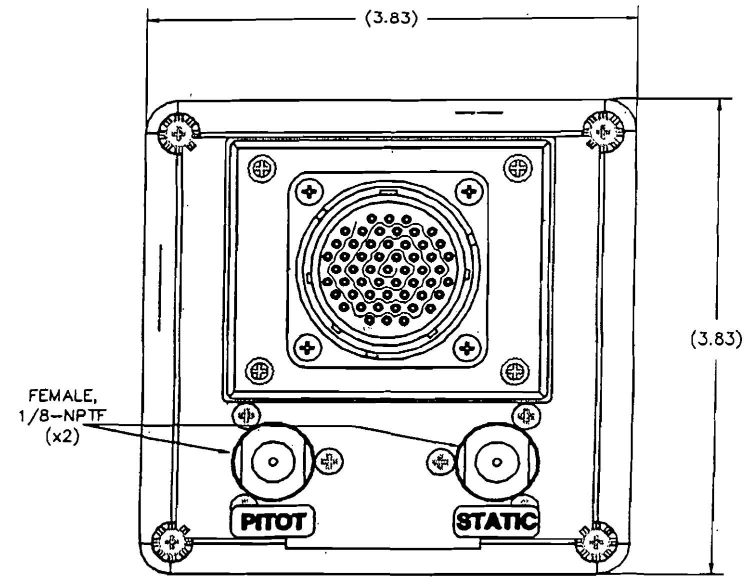
DRAWING DATE 4/29/05	SHADIN MINNEAPOLIS, MN 55426
DRAFTSMAN PAB	INSTALLATION , ADC2000 QS, DIGITAL FF
APPROVED EDJ	
FILE NAME 962831A1S8-J.DWG	
DIRECTORY 962831A-Y-S-8	DRAWING NO. 4028-T94 / SIZE A / P/N 962831A-1-S-8 / REV. –
SHEET 1 OF 1	

NOTES:

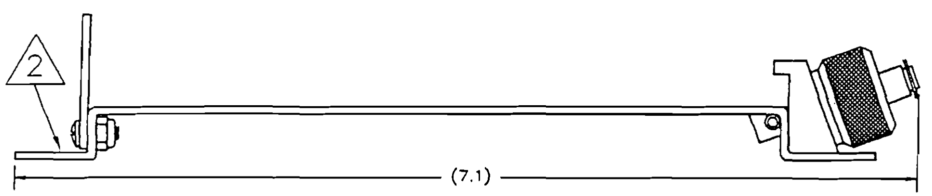
1. INSTALLED WEIGHT = 2.8 LB.
2. (△2) USE FOUR #6 MOUNTING SCREWS.
3. (△3) FOR COMMUNICATION (RX/TX) WITH LORAN OR GPS. USE EITHER RS232 OR RS422 NOT BOTH.
4. (△4) RS232 PORT 2 RESERVED FOR FUTURE USE

MATING CONNECTOR:
SUPPLIED AS PART OF INSTALLATION KIT
P1
CONN. MS24266R22B55SN (P/N 233272)
CLAMP MS27291-6 (P/N 233273)





FRONT VIEW / CAP & PLUGS REMOVED



RIGHT SIDE VIEW

J1 PINOUT
1. N/C
2. HEADING Y-SYNCHRO INPUT
3. N/C
4. SHIELD GROUND
5. BARO INPUT +
6. N/C
7. HEADING X-SYNCHRO INPUT
8. N/C
9. TX, RS232 △4
10. SHIELD GROUND

J1 PINOUT
11. N/C
12. LEFT SINE FF INPUT +
13. N/C
14. N/C
15. N/C
16. BARO INPUT −
17. N/C
18. HEADING 26 VAC. H
19. TX, RS422 (−)
20. RX, RS422 (−) △3

J1 PINOUT
21. TX, RS232
22. RESERVED (ARINC 429 B)
23. SHIELD GROUND
24. RIGHT SINE FF INPUT +
25. N/C
26. LEFT SINE FF INPUT −
27. N/C
28. N/C
29. N/C
30. N/C
31. N/C
32. N/C

J1 PINOUT
33. OAT SIGNAL
34. N/C
35. HEADING 26 VAC C
36. TX, RS422 (+)
37. FLAG (RESERVED)
38. RX, RS422 (+) △3
39. RX, RS232 △3
40. RESERVED (ARINC 429 A)
41. N/C
42. RX RS232 △4
43. RIGHT SINE FF INPUT −
44. N/C

J1 PINOUT
45. N/C
46. N/C
47. N/C
48. N/C
49. N/C
50. N/C
51. N/C
52. OAT POWER
53. BARO WIPER
54. POWER GROUND
55. +28V

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
0504/046	-	05/02/05	PAB	EDS	BASELINE RELEASE

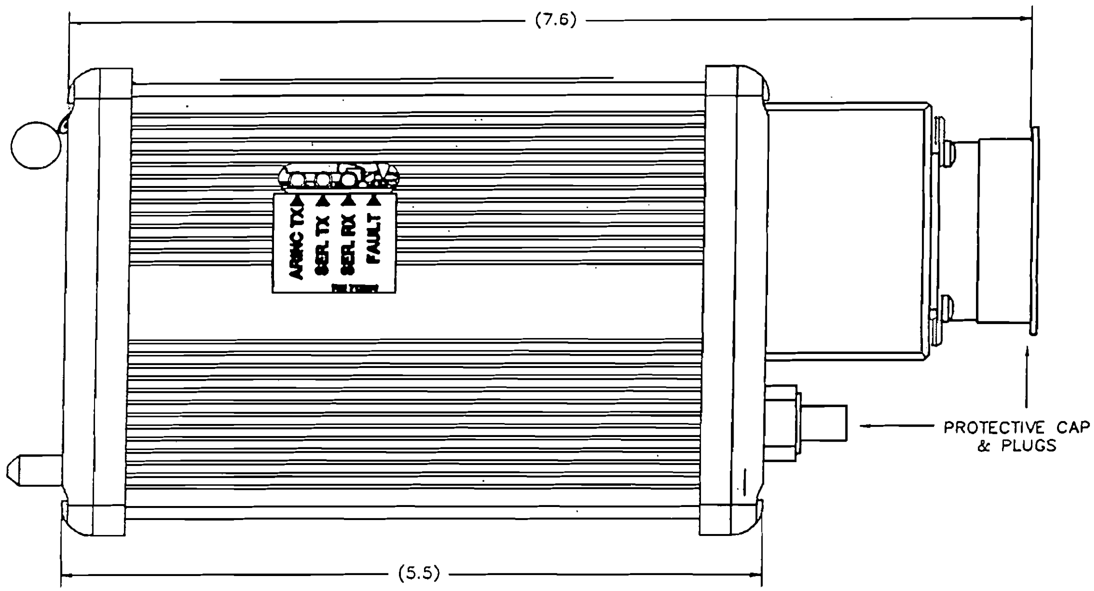
DO NOT SCALE DRAWING

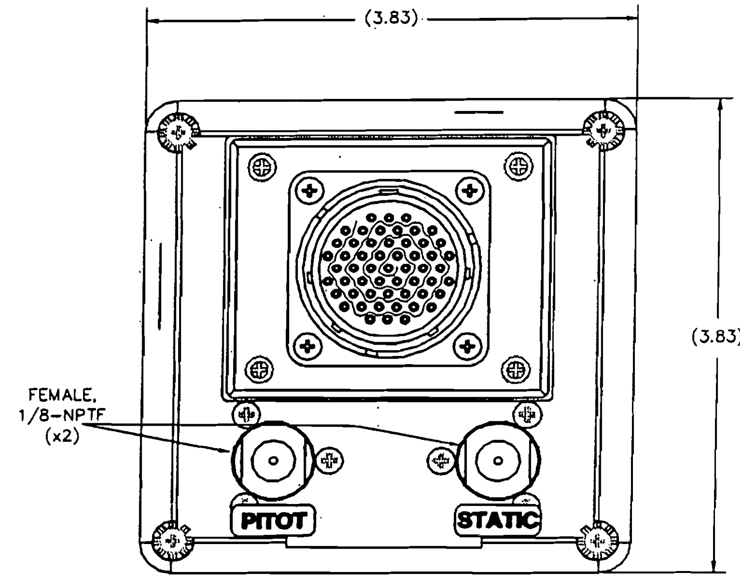
DRAWING DATE 4/29/05	SHADIN MINNEAPOLIS, MN 55426
DRAFTSMAN PAB	INSTALLATION, ADC2000 QS, SINE FF
APPROVED EDS	
FILE NAME 962831A2S8-J.DWG	
DIRECTORY 962831A-Y-S-8	DRAWING NO. 4028-T95 · SIZE A · P/N 962831A-2-S-8 · REV. —
SHEET 1 OF 1	

MATING CONNECTOR:
SUPPLIED AS PART OF INSTALLATION KIT
P1
CONN. MS24266R22B55SN (P/N 233272)
CLAMP MS27291-6 (P/N 233273)

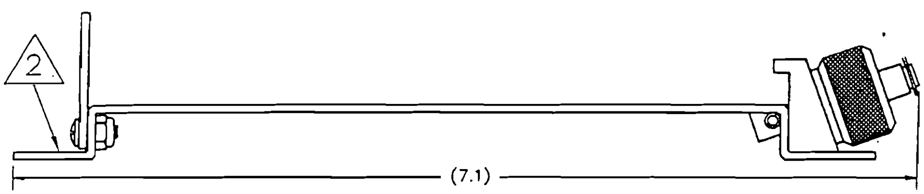
NOTES:

1. INSTALLED WEIGHT = 2.8 LB.
2. (2) USE FOUR #6 MOUNTING SCREWS.
3. (3) FOR COMMUNICATION (RX/TX) WITH LORAN OR GPS. USE EITHER RS232 OR RS422 NOT BOTH.
4. (4) RS232 PORT 2 RESERVED FOR FUTURE USE





FRONT VIEW / CAP & PLUGS REMOVED



RIGHT SIDE VIEW

J1 PINOUT
1. N/C
2. HEADING Y-SYNCHRO INPUT
3. N/C
4. SHIELD GROUND
5. BARO INPUT +
6. N/C
7. HEADING X-SYNCHRO INPUT
8. N/C
9. TX, RS232 (4)
10. SHIELD GROUND

J1 PINOUT
11. N/C
12. LEFT DC FF INPUT +
13. N/C
14. N/C
15. N/C
16. BARO INPUT −
17. N/C
18. HEADING 26 VAC. H
19. TX, RS422 (−)
20. RX, RS422 (−) (3)

J1 PINOUT
21. TX, RS232
22. RESERVED (ARINC 429 B)
23. SHIELD GROUND
24. RIGHT DC FF INPUT +
25. N/C
26. LEFT DC FF INPUT −
27. N/C
28. N/C
29. N/C
30. N/C
31. N/C
32. N/C

J1 PINOUT
33. OAT SIGNAL
34. N/C
35. HEADING 26 VAC C
36. TX, RS422 (+)
37. FLAG (RESERVED)
38. RX, RS422 (+) (3)
39. RX, RS232 (3)
40. RESERVED (ARINC 429 A)
41. N/C
42. RX RS232 (4)
43. RIGHT DC FF INPUT −
44. N/C

J1 PINOUT
45. N/C
46. N/C
47. N/C
48. N/C
49. N/C
50. N/C
51. N/C
52. OAT POWER
53. BARO WIPER
54. POWER GROUND
55. +28V

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
0504/046	-	05/02/05	PAB	EDJ	BASELINE RELEASE

DO NOT SCALE DRAWING

DRAWING DATE 4/29/05
DRAFTSMAN PAB
APPROVED EDJ
FILE NAME 962831A3S8-J.DWG
DIRECTORY 962831A-Y-S-8
SHEET 1 OF 1

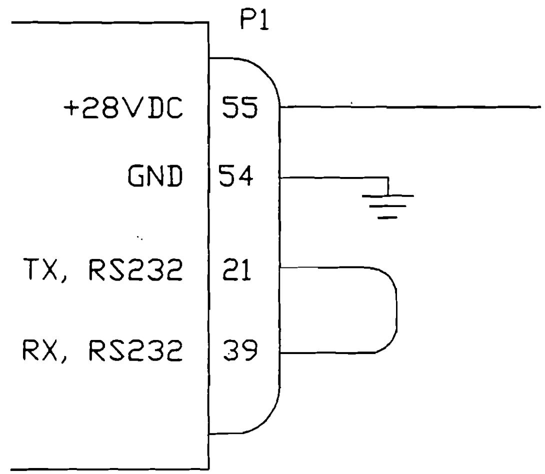
SHADIN MINNEAPOLIS, MN 55426

INSTALLATION, ADC2000 QS, DC FF

DRAWING NO. 4028-T96 | SIZE A | P/N 962831A-3-S-8 | REV. —

NOTE:

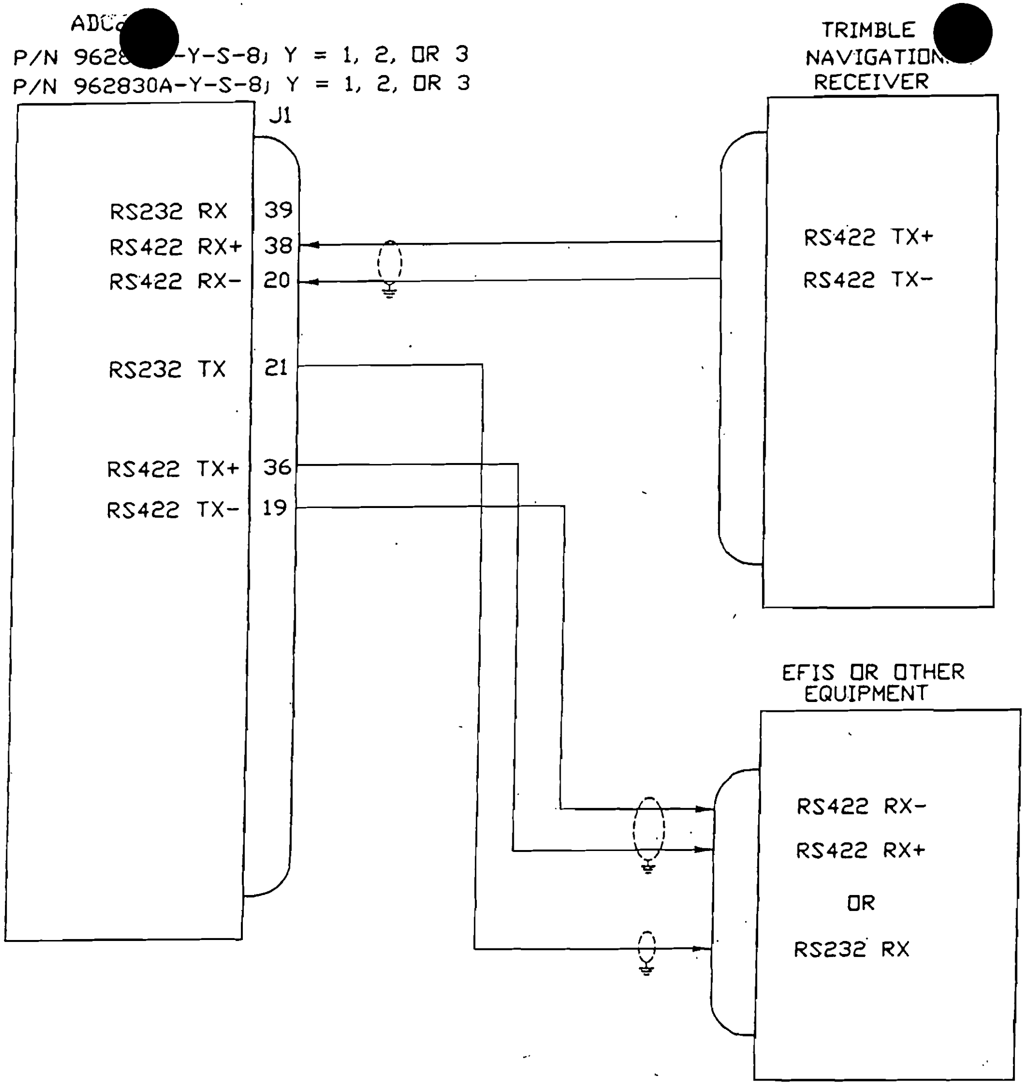
1. CONSULT INSTALLATION MANUAL FOR F/ADC PROGRAMMING INSTRUCTIONS.
2. MATING CONNECTOR: MS 24266R22B55S SHADIN PN 233272 OR EQUIVALENT



ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
9809/022	-	9/28/98	DLR	KCL	BASELINE RELEASE

NOT TO SCALE

DRAWING DATE 9/14/98	*SHADIN* MINNEAPOLIS, MN 55426
DRAFTER DLR	INSTALLATION WIRING, LOOP BACK HARNESS FOR F/ADC 200, 2000, MS CONNECTOR
APPROVED KCL	
FILE NAME 4028-A62-J.DWG	
DIRECTORY 4028	DRAWING NO. 4028-A62 · SIZE A · P/N ——— · REV —
SHEET 1 OF 1	



ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
0504/046	B	05/02/05	PAB	EDJ	ADDED P/N 962831A-Y-S-8; EDITED TITLE BLOCK
0304/037	A	4/23/03	PAB	EDJ	'P/N 962830A-Y-S-8; Y = 1, 2, OR 3' WAS 'P/N 962830A-1-S-8'
0207/023	-	7/30/02	PAB	EDJ	BASELINE RELEASE

NOT TO SCALE

DRAWING DATE	7/30/02
DRAFTER	PAB
APPROVED	EDJ
FILE NAME	4028-E29BJ.DWG
DIRECTORY	4028
SHEET	1 OF 1

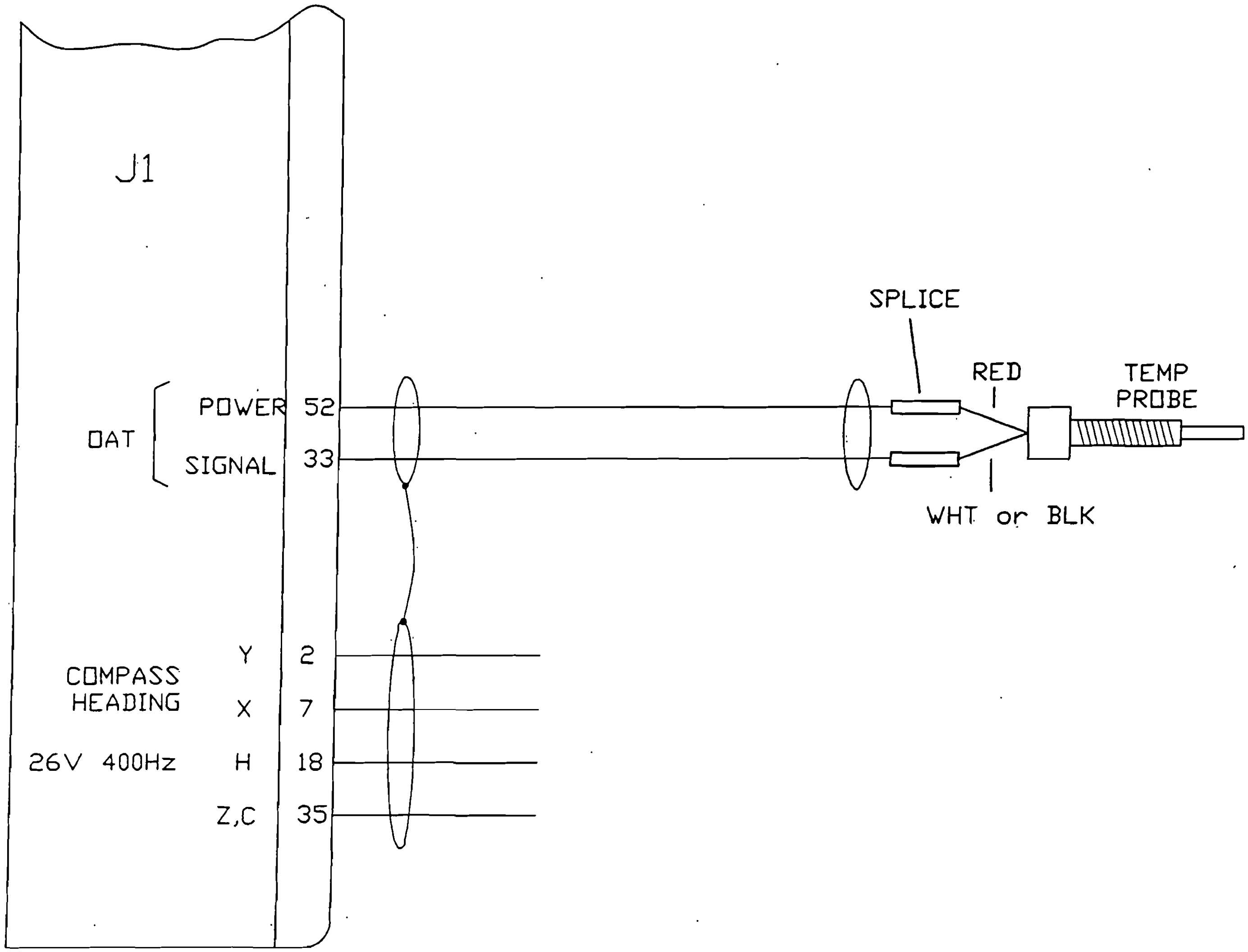
SHADIN MINNEAPOLIS, MN 55426

INSTALLATION WIRING, ADC2000, QUICKSTART, RS232/RS422

DRAWING NO.	SIZE	P/N	REV
4028-E29	A	—	B

ADC 2000

962830A-Y-S-8; Y = 1, 2, OR 3
962831A-Y-S-8; Y = 1, 2, OR 3



ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
0504/046	B	05/02/05	CB	EDJ	ADDED 962831A-Y-S-8; Y = 1, 2, OR 3; EDITED TITLE BLOCK
0304/037	A	04/23/03	PAB	EDJ	"962830A-Y-S-8; Y = 1, 2 OR 3" WAS "962830A-1-S-8"
0207/023	-	7/30/02	PAB	EDJ	BASELINE RELEASE

SCALE: NONE

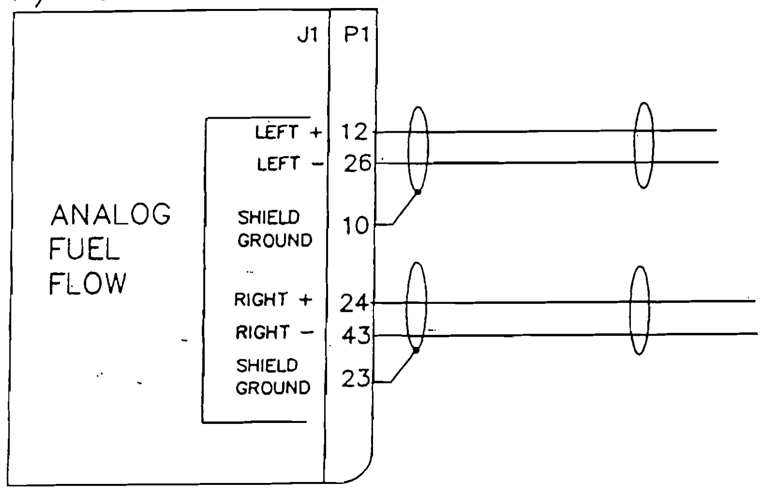
DRAWING DATE 7/30/02
DRAFTER PAB
APPROVED EDJ
FILE NAME 4028-E30BJ.DWG
DIRECTORY 4028
SHEET 1 OF 1

SHADIN MINNEAPOLIS, MN 55426

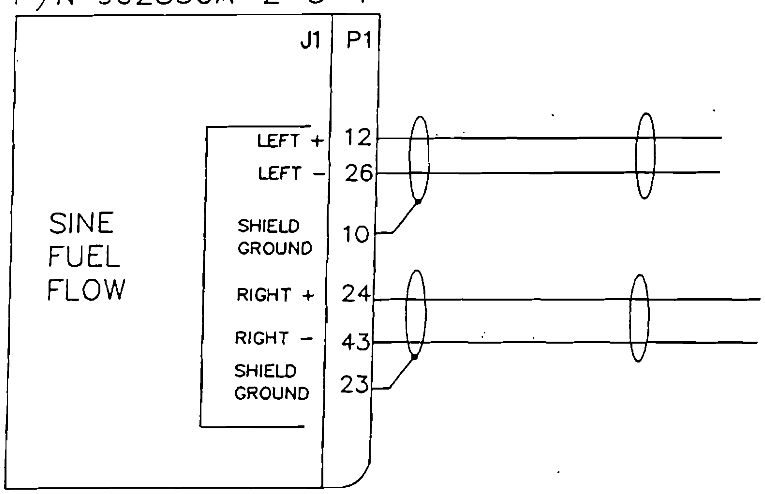
INSTALLATION WIRING, ADC2000, QUICKSTART, DAT/HEADING SYSTEM

DRAWING NO. 4028-E30 | SIZE A | P/N ------ | REV B

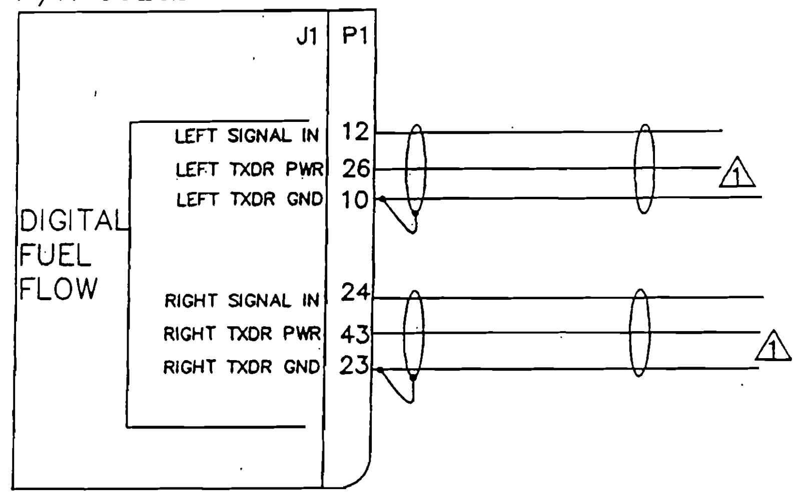
P/N 96[illegible]1A-3-S-8
P/N 962[illegible]0A-3-S-8
P/N 962830A-3-S-4



P/N 962831A-2-S-8
P/N 962830A-2-S-8
P/N 962830A-2-S-4



P/N 962831A-1-S-8
P/N 962830A-1-S-8
P/N 962830A-1-S-9
P/N 962830A-1-S-7
P/N 962830A-1-S-4



NOTE

⚠1 DO NOT CONNECT J1/P1:26 OR J1/P1:43 WHEN INTERFACING WITH EXISTING FUEL FLOW SYSTEM.

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
0504/046	C	05/02/05	CB	EDJ	ADDED P/N 962831A-1-S-8, -2-S-8, & -3-S-8
0304/037	B	4/23/03	PAB	EDJ	ADDED P/NS 962830A-1-S-9, 962830A-1-S-8, -2-S-8, & -3-S-8
0103/012	A	3/19/01	PAB	EDJ	ADDED P/N 962830A-1-S-7
9710/028	–	10/22/97	DLR	KCL	BASELINE RELEASE

DO NOT SCALE DRAWING

DRAWING DATE	10/21/97
DRAFTSMAN	DLR
APPROVED	KCL
FILE NAME	4028-875CJ.DWG
DIRECTORY	4028
SHEET	1 OF 1

SHADIN MINNEAPOLIS, MN 55426

INSTALLATION WIRING, ADC 2000 QUICKSTART DIGITAL, SINE, AND DC FUEL FLOW

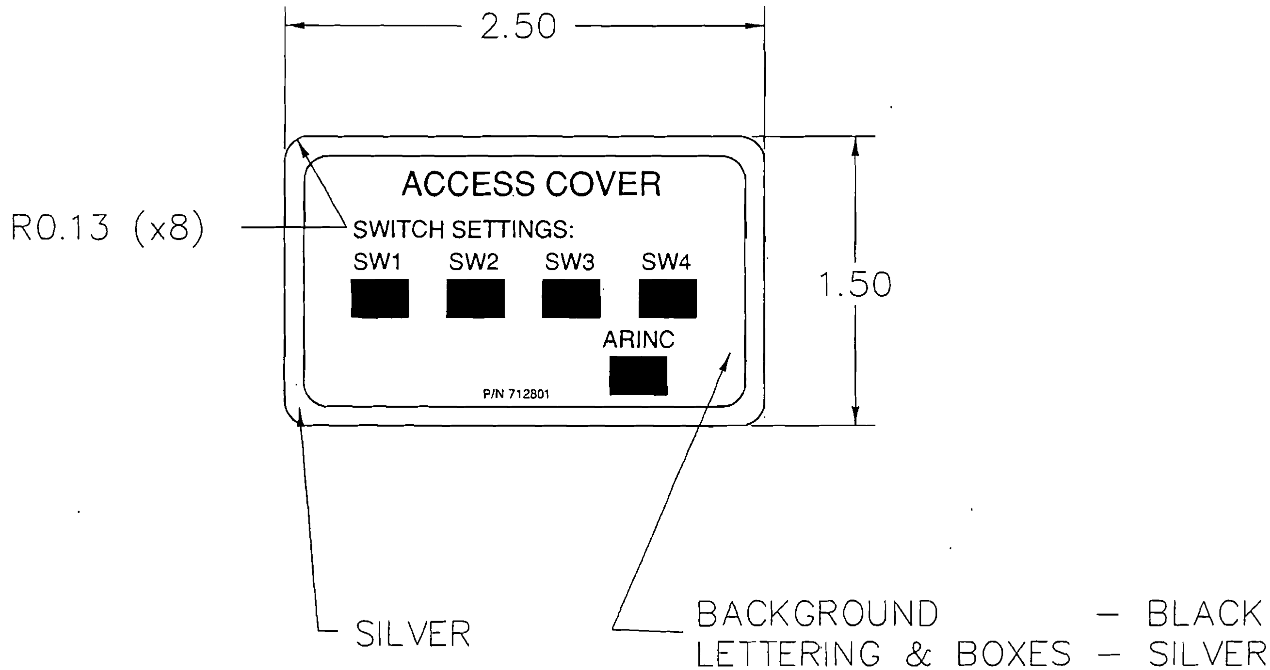
DRAWING NO.	SIZE		REV
4028-875	A	P/N	C

MANUFACTURING NOTES:

1. MATCH FONT STYLE AND SIZES. ALL OTHER DIMENSIONS AS SHOWN.
2. SWITCH SETTING BOX DIMENSIONS ARE AS FOLLOWS:
   WIDTH = .295
   HEIGHT = .200

APPLICATION NOTES:

A. IF CONFIGURATION IS NECESSARY PRINT SWITCH SETTINGS IN SPACE PROVIDED. PRINT "N/A" WHEN SWITCHES ARE NOT USED.
   (MANUFACTURER IGNORE)



ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
01/032	A	2-14-05	PAB	[illegible]	UPDATED TITLE BLOCK
12/002	–	12/3/98	PAB	KCL	BASELINE RELEASE

UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES TOLERANCES: X.X – ±0.1, X.XX – ±0.01, X.XXX – ±0.005	DRAWING DATE 12/2/98	SHADIN MINNEAPOLIS, MN 55426
	DRAFTER PAB	LABEL, ADC200/2000 ACCESS COVER
FINISH: N/A	APPROVED KCL	
MATERIAL: 3M 7983	FILE NAME 712801A.DWG DIRECTORY 71XXXX	DRAWING NO. 4028-A80 / SIZE A / P/N712801 / REV A
SCALE: FULL	SHEET 1 OF 1	

NOTES:

1. USE LASERJET PRINTER TO PRINT THIS TABLE CENTERED ON THE BLANK LABEL USING AN 18 CPI, 10 POINT FONT. USE "750004-14-.DOC" FILE FOR IMAGE.
2. FONT: SCALEABLE 6 POINT.

(2.50)

CONFIGURATION			
STAGE			
SW1	SW2	SW3	SW4
0	8	0	0
1	0	6	0
2	0	0	0
3	0	0	0
4	0	0	0
FACTORY SET FOR CHELTON INSTALLATION: REFER IM2831-AYS8			

P/N 750004-14

(2.50)

0504/046	-	05/02/05	PAB	EDS	BASELINE RELEASE
ECO #	REV.	DATE	BY	APP'D	DESCRIPTION

UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES TOLERANCES: N/A	DRAWING DATE 4/29/05	SHADIN MINNEAPOLIS, MN 55426
	DRAFTER PAB	LABEL, CONFIGURATION, P/N 962831A-1-S-8
	APPROVED EDS	
FINISH: N/A	FILE NAME 750004-14-.DWG	
MATERIAL: SCI P/N 750004	DIRECTORY 75XXXX	DRAWING NO. 4028-130 · SIZE A · P/N 750004-14 · REV —
SCALE: 1 : 1	SHEET 1 OF 1	

NOTES:

1. USE LASERJET PRINTER TO PRINT THIS TABLE CENTERED ON THE BLANK LABEL USING AN 18 CPI, 10 POINT FONT. USE "750004-15-.DOC" FILE FOR IMAGE.
2. FONT: SCALEABLE 6 POINT.

(2.50) × (2.50)

CONFIGURATION			
STAGE			
SW1	SW2	SW3	SW4
0	0	0	0
1	0	6	0
2	0	0	0
3	0	0	0
4	0	0	0
FACTORY SET FOR CHELTON INSTALLATION: REFER IM2831-AYS8			

P/N 750004-15

ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
504/046	–	05/02/05	PAB	EDJ	BASELINE RELEASE

UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES
TOLERANCES: N/A
FINISH: N/A
MATERIAL: SCI P/N 750004
SCALE: 1 : 1

DRAWING DATE 4/29/05
DRAFTER PAB
APPROVED EDJ
FILE NAME 750004-15-.DWG
DIRECTORY 75XXXX
SHEET 1 OF 1

SHADIN MINNEAPOLIS, MN 55426

LABEL, CONFIGURATION, P/N 962831A-2-S-8

DRAWING NO. 4028-T92 | SIZE A | P/N 750004-15 | REV –

NOTES:

1. USE LASERJET PRINTER TO PRINT THIS TABLE CENTERED ON THE BLANK LABEL USING AN 18 CPI, 10 POINT FONT. USE "750004-16-.DOC" FILE FOR IMAGE.

2. FONT: SCALEABLE 6 POINT.

(2.50) × (2.50)

CONFIGURATION			
STAGE			
SW1	SW2	SW3	SW4
0	8	0	0
1	0	6	0
2	0	0	0
3	0	0	0
4	0	0	0
FACTORY SET FOR CHELTON INSTALLATION: REFER IM2831-AYS8			

P/N 750004-16

CO #	REV.	DATE	BY	APP'D	DESCRIPTION
04/046	–	05/02/05	PAB	EDJ	BASELINE RELEASE

UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES
TOLERANCES: N/A
FINISH: N/A
MATERIAL: SCI P/N 750004
SCALE: 1 : 1

DRAWING DATE 4/29/05
DRAFTER PAB
APPROVED EDJ
FILE NAME 750004-16-.DWG
DIRECTORY 75XXXX
SHEET 1 OF 1

SHADIN MINNEAPOLIS, MN 55426

LABEL, CONFIGURATION, P/N 962831A-3-S-8

DRAWING NO. 4028-T93 | SIZE A | P/N 750004-16 | REV –

Shadin Avionics
Filename: 681201-1HP.doc
DIRECTORY: 681201-1

Report: 4032D
ECO Date: April 4, 2007
Rev: H
Sec.: IX

ECO #: 0704/002
Release date: 4-6-07
Approved: ZK

PARTS LIST

Drawing #s: 4028-005 Rev C

Part #: **681201-1**
Description: **OAT PROBE ASSEMBLY KIT**

FN	P/N	QTY.	DESCRIPTION	MFG.	MFG.#	DESIGNATION	COMMENTS
10	511201	4	RIVET, AN4703-4 or MS20470AD3-4				
15	543216	1	OAT STIFFENER RING	SHA	4032-082		
20	670503	1	SHIELD, Temp Sensor Assy	SHA	4005-265		
25	670504	1	NUT, Temp Sensor	SHA	4005-266		
30	670505	1	WASHER, Flat OAT	SHA	4005-303		
35	670506	1	WASHER, Shoulder OAT	SHA	4005-304		
40	681201	1	OAT PROBE	SHA	4005-794		

10 items

Report: 4028B
ECO Date: July 28, 2005
Rev: –
Sec.: IX
Page 1 of 1

ECO #: 0507/053
Release Date: 8-1-05
Approved: ZK

PARTS LIST

Drawing #s: N/A

Part #: **IK9630A-4**
Description: **INSTALL KIT, ADC2000 MS CONN**

FN	P/N	QTY.	DESCRIPTION	MFG.	MFG.#	DESIGNATION	COMMENTS
5	233272	1	CONN, 55 Pin, St Plug, Socket, Blk	APH	MS24266R22B55SN		
10	233273	1	CONN, Clamp, Straight, #22, Blk	APH	MS27291-6		
15	612826B	1	MOUNTING TRAY	SHA	4028-U33		
17	753217	1	COMPUTER LABEL, 3.5"x 15/16"	AVR	4013		IK Part Number Marking
20	PK1008	1	BAG, 6 x 10.5, 4 MIL				

5 items